

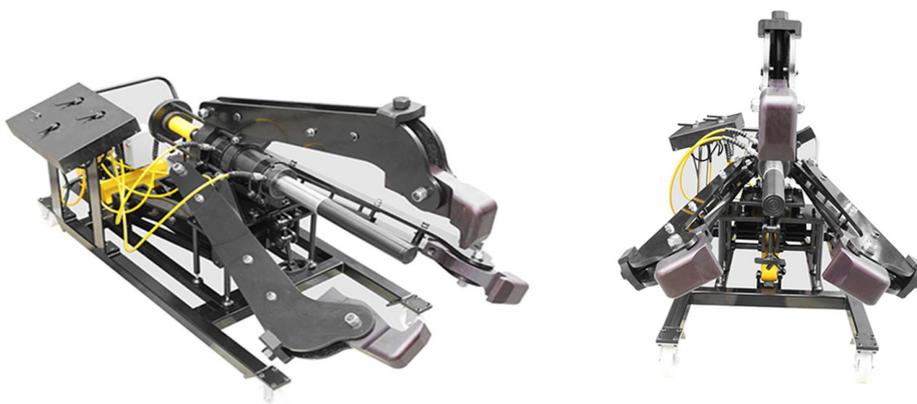
RIVERLAKE HYDRAULIC PULLER EPHS1501

INSTRUCTION MANUAL

(1) Product introduction and main components:

RIVERLAKE's EPHS1501 vehicle-mounted hydraulic puller, which is operated by hydraulic pressure to adjust the vertical height position of the puller and the jaw extension and workpiece pulling. The puller mainly includes a jaw mechanism, a jaw telescopic mechanism, a main cylinder height adjustment mechanism, a roller cart, and corresponding mechanism components; The hydraulic components and systems are 700bar ultra-high pressure hydraulic systems;

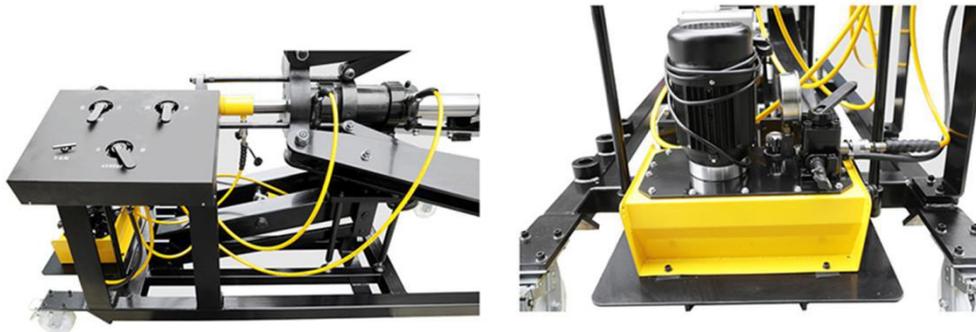
(1.1) The outline drawing and main components are as follows:



- Jaw mechanism: adjustable clamp jaws to fix the workpiece to be removed;

- Main cylinder height adjustment mechanism: Including height adjustment cylinder, which can adjust the center height of the main cylinder;
- Jaw telescopic mechanism including a telescopic cylinder, which can achieve the extension of the jaw;
- 150TON main cylinder: to achieve workpiece removal;
- Operation panel: The hydraulic valve on the control panel is used to control the movement of the hydraulic cylinder;
- Electric pump: Provide hydraulic power to all cylinders;
- Remote control handle: control pump to start and stop

(1.2) Main components:



1.VC20 (1) : Three-position four-way manual reversing valve to control the extension and retraction of the jaw cylinder(needs to

work with VC4);

2.VC20 (2): Three-position four-way manual reversing valve, controlling the extension and retraction of the 150 ton main cylinder (needs to work with VC4);

3.VC4: Three-position four-way manual reversing valve to control the extension and retraction of the height adjustment cylinder(throttle

valve V82 (1));

4. Throttle valve V82 (1): Throttle valve, adjusts the height adjustment cylinder expansion speed and cuts off the height adjustment cylinder oil circuit (need VC4 cooperation);

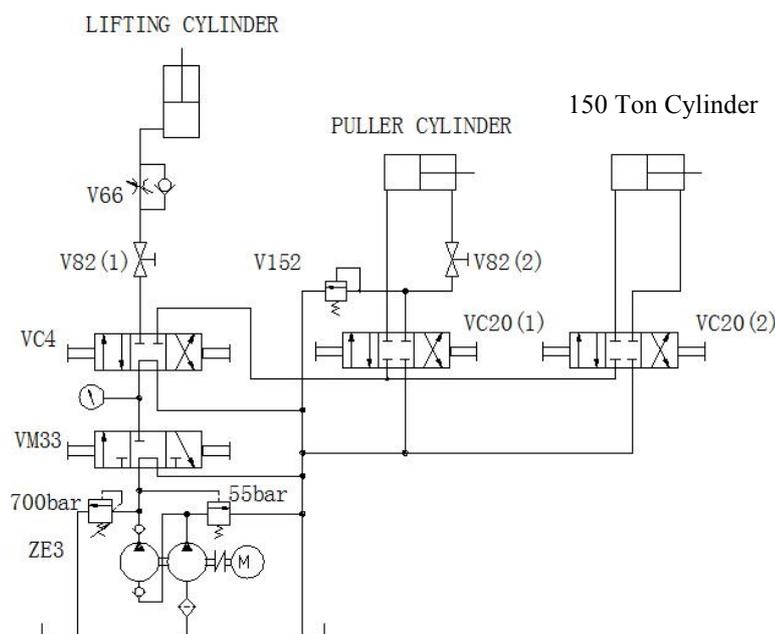
5. Throttle valve V82 (2): Throttle valve, adjusts and controls the expansion speed of the jaw oil cylinder and cuts off the oil circuit of the jaw oil cylinder (need VC20 (1) to cooperate);

6. One-way throttle valve V66: adjust the height of the control to adjust the retraction speed of the cylinder (need VC4 to cooperate);

7. Relief valve V152: adjust and control the retraction working pressure of the jaw cylinder;

8. VM33: Control the ZE3 pump to supply or return oil to the system;

(1.3) Hydraulic schematic:



(2) Safety Precautions:

Warning

Don't overload the hydraulic cylinder. Overloading can cause equipment damage and even personal injury. Use pressure gauges in each hydraulic system to ensure that it works under proper working pressure. Do not exceed the limit pressure of the lowest rated pressure component in the system. Always use high pressure hoses and fittings.

Warning

Don't let the hydraulic cylinder extend too much, and cannot exceed its rated stroke limit, otherwise it will cause damage to the oil cylinder.

Warning

Avoid sharp bending and kinking of the hose. When the fluid is restricted, it can cause severe back pressure. Severe bending and kinking can also damage the hose internally, causing permanent damage.

Warning

Wear safety glasses to protect eye injury

 Warning

During the operation, keep hands and fingers out of the operation area to avoid personal injury;

Tip: It is important to predict the exact force required in each extraction situation. The appropriate pressure value and pull-out force value vary greatly on the tasks. Must consider the structural requirements and the size, shape and condition of the extracted parts. Before you choose a puller, you should examine its various applications. Pay special attention to the maximum effective value that the puller can withstand.

Consider these forces and always follow all safety precautions and warnings.

Note: Make sure that the extracted part is supported by other components, not by the puller. Do not use the puller as a lifting and supporting tool. Install the hydraulic cylinder into the jaw head coupling part through the thread of the cylinder outer ring clockwise. Make sure that the outer ring threads of the cylinder have all been screwed into the puller. Fix both ends of the hydraulic cylinder through the lifting frame. Remove the saddle of the hydraulic cylinder and insert the plug into the plunger. It is necessary to select a suitable plug to achieve the maximum contact with the shaft end surface. Make sure that the puller fits the part to be pulled out, extend the plunger until the tip contacts the shaft and ensure correct centering. (If necessary, refer to the pump manual.) The center of the plug should be connected to the center of the shaft in a straight line and the wheel and the pull claw should be in complete and reliable contact. Continue to slowly extend the plunger to pull the part off its axis. Never exceed the maximum rated force of the puller;

 Warning

Do not stand above, below or near the puller during use.
Avoid contact of hands, feet and clothes with moving parts

Warning

When transporting the puller, place the puller in the lowest position and remove the jaw extender

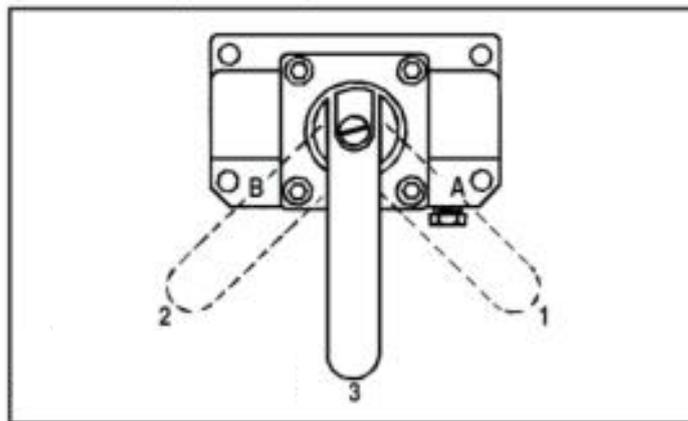
(3) Operation:

(3.1) Pump operation:

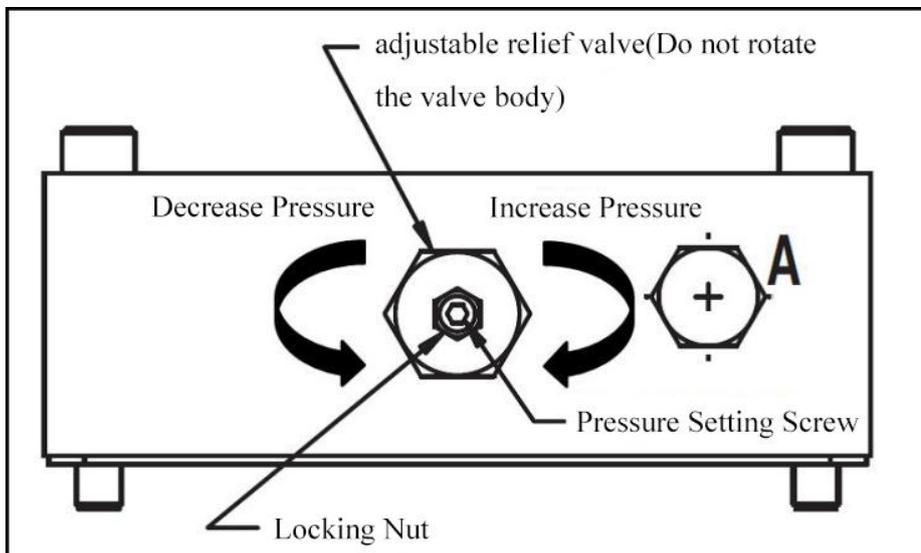
Electric hydraulic pump is a two-stage two speed pump, with a flow rate 5.26L/min at 50 bar at low pressure and 0.55L/min at 700 bar at high pressure. The motor power is 0.75KW and voltage is single phase 220V/AC;

A. Motor start and stop: The remote control handle has a double button. Press the button and the motor starts and keeps running. Press the button again to stop the motor. The remote control handle can be operated according to the actual situation to achieve the slow extension and retraction of the hydraulic cylinder and load step by step;

Note: Before starting the motor for the first time, adjust VM33 on the pump to median position.



B.Pump pressure setting: The VM33 manual reversing valve installed on the pump is equipped with an adjustable relief valve. Adjust the pressure according to the diagram.



Before adjusting the pressure, disconnect the pressure oil pipeline from the quick-change connector on the operation panel, press the remote control handle button to start the motor, adjust the VM33 handle to the oil supply position 1, and set the pump pressure below 700 bar according to the pressure gauge. It is generally recommended to set at 650-700bar. After the pressure is adjusted, tighten the lock nut, press the button again to stop the motor from the remote control handle, and adjust the VM33 handle to the oil return position 2. After the system pressure drops to zero, change the VM33 valve handle to the neutral position 3, and reconnect the pressure oil pipe to the quick coupling on the operation panel.

(3.2) The initial position (state) of all valves before operating the puller

Before operating the puller, confirm the position or state of all hydraulic valves. The handles of the VM33 valves on the VC20, VC4 and pumps on the operation panel should all be in the middle position 3. The throttle valve V82 on the operation panel is closed clockwise, and the one-way throttle valve connected to the height adjustment cylinder should be closed clockwise before the first use.

Special reminder: Due to the design update, the panel layout of different batches of products is different, mainly because the left and right sides of the telescopic cylinder display different actions, just follow the panel logo to operate;



(3.3) Puller up and down position adjustment and height adjustment speed control:

(A) Ascent position adjustment and speed control:

Change the VC4 valve handle to the left position 2, rotate the throttle valve V82 counterclockwise one to two turns, and the VM33 valve handle on the pump to the right position 1. Press the pump operating handle button to start the pump, and the puller starts to rise. During the ascent process, the ascent speed can be adjusted by adjusting the opening of the throttle valve V82. After the puller rises to the expected height, press again the pump operation handle button, close the throttle valve V82 clockwise, change the VC4 valve handle to the neutral position 3, and the raising adjustment ends.



Tip: Until completion of the position adjustment and the the puller operation, the VM33 valve handle on the ZE3 pump should always be kept in the right position 1. After all the work is completed, change the handle to the left position 2 to release pressure of the hydraulic systems. After unloading, change the handle to the neutral position 3;

(B) Lowering position adjustment and speed control:
Change the VC4 valve handle to the right position 1, turn the throttle valve V82 counterclockwise until it is fully opened (two to three turns), and loosen the one-way throttle valve connected to the lift cylinder To tighten the lock nut, slowly rotate the handle of the one-way throttle valve counterclockwise, and the puller begins to slowly descend. After descending to the expected height, change the VC4 valve handle to the neutral position 3, close the throttle valve V82 clockwise, and the descending adjustment ends;



Tip: The first time you use the puller, you can adjust the one-way throttle to adjust the lowering speed of the puller to the expected speed (slow speed) and then lock the lock nut on the one-way throttle so that it will not be necessary to operate the one-way throttle valve when using this puller in the future and there is no need to start the pump for pulling down operation.

(3.4). Puller jaw telescopic adjustment

(A) Claw extension adjustment

Change the VC4 valve handle to the right position 1, and change the VC20 (1) valve handle to the "extended" position, press the pump operating handle button to start the pump, and the jaws begin to extend. After the jaws are extended to the expected tension, press again the handle button, change the VC4 and VC20 (1) valve handles to the neutral position 3. The jaws are extended and the adjustment ends;



(B) Claw retraction adjustment

Change the VC4 valve handle to the right position 1, VC20 (1) valve handle to the "retracted" position, press the pump operating handle button to start the pump, and the jaws begin to retract. The jaws retract to the expected tension and press again the handle button, change the VC4 and VC20 (1) valve handles to the neutral position 3. The jaws retract and adjust the end.



Note: When operating the jaw extension, strictly follow the "warning" statement in this instruction manual. When operating the jaws to expand and contract, the throttle valve V82 (1) must be fully closed;

(3.5) Main cylinder telescopic adjustment

(A) Main cylinder extension adjustment (pulling wheel)

Change the VC4 valve handle to the right position 1 and the VC20 (2) valve handle to the right position 1. Press the pump operating handle button to start the pump, and the main cylinder begins to extend and complete the pulling work. In the process of pulling the wheel, you can operate the pump handle button to achieve step-by-step loading to complete the pulling work. After pulling the wheel, press the operating handle button again to change the VC4, VC20 (2) valve handle to the neutral position 3, and prepare the main cylinder to retract and adjust;



Reminder: During the operation of extending the main cylinder and pulling the wheel, strictly observe this "Warning" statement in the instruction manual. When operating the main cylinder to extend, ensure that the throttle valve V82 (1) is fully closed;

(B) Retraction adjustment of main cylinder:

Change the VC4 valve handle to the right position 1, VC20 (2) valve handle to the left position 2, press the pump operating handle button to start the pump, the main cylinder begins to retract, and then press it again after retracting to the initial position Handle button, change the VC4, VC20 (2) valve handle to the middle position 3, the operation ends.



Tip: During the retracting operation of the main cylinder, strictly follow the "Warning" statement in this instruction manual. When operating the main oil to retract, you must ensure that the throttle valve V82 (1) is fully closed

(3.6) End of operation

After the pulling operation is over, adjust the main cylinder and jaws to the fully retracted position, lower the puller to the lowest position, and check that the operation panel and the valve on the pump are in the initial position (state).

(4) Product Specifications:

Serial number	Parameter name	Unit symbol	Value	Remark
1	Minimum height of main cylinder center	mm	855	
2	Maximum height of main cylinder center	mm	1490	
3	Min Reach	mm	803	
4	Max Reach	mm	955	
5	Min Spread	mm	140	
6	Max Spread	mm	1580	
7	Main Cylinder Capacity	ton	150	
8	Main Cylinder Stroke	mm	300	